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REPORT OF

CHICAGO FIRE

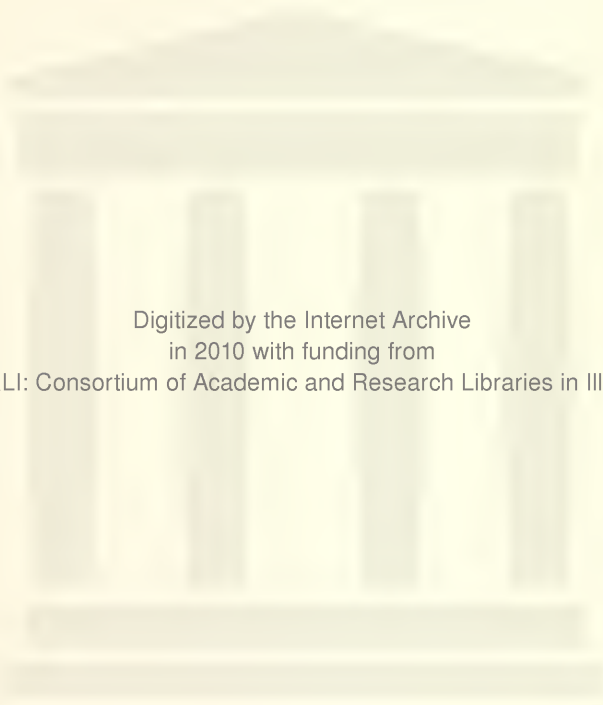
OF MARCH 15, 1922

EMBRACING C. B. & Q. R. R. CO.
OFFICE BUILDING

ATLANTIC AND AUSTIN (SPRINGER)
BUILDINGS AND OTHERS

By CHICAGO BOARD OF UNDERWRITERS

MAY 15th, 1922



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**CHICAGO BOARD OF UNDERWRITERS' REPORT ON CHICAGO FIRE
OF MARCH 15TH, 1922.**

**Embracing C. B. & Q. R. R. Co.'s Office Building, Atlantic and
Austin Buildings and Others.**

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Fig. 1A.
BURNING BUILDINGS AT 2:45 A. M. BURLINGTON BUILDING AT RIGHT.
(PHOTO BY DAILY NEWS)

CHICAGO BOARD OF UNDERWRITERS' REPORT ON CHICAGO FIRE OF MARCH 15TH, 1922

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1. PROPERTIES INVOLVED—

517-523 W. JACKSON BOUL. 2-story and basement joisted brick building with multiple tenants
Property loss, total.

525-531 W. JACKSON BOUL. 1- and 2-story and basement joisted brick building with multiple tenants.
Property loss, total.

309-315 S. CLINTON ST. 7-story and basement joisted brick building, sprinklered, with multiple
tenants.

317-319 S. CLINTON ST. 1-story = 1-story and basement, and 7-story and basement semi-mill build-
ing, sprinklered, with multiple tenants.

306-312 S. CANAL ST. 8-story, basement and sub-basement, semi-mill building, sprinklered, with
multiple tenants.

314-318 S. CANAL ST. 8-story, basement and sub-basement, semi-mill building, sprinklered, with
multiple tenants. Loss on Austin Buildings (309-319 S. Clinton and 306-318 S. Canal) adjusted at \$499,225.66;
rent loss adjusted at \$115,000.00; insurance on contents, \$935,400.00, adjustment figures not obtained.

300-304 S. CANAL ST. 8-story, basement and sub-basement, semi-mill building, sprinklered, with
multiple tenants. Fire insurance loss on building adjusted at \$85,000.00; insurance on contents, \$201,300.00,
adjustment figures not obtained.

324 S. CANAL ST. Elevated station, platform and structure. Property loss, \$75,000.00; no insurance.

541-553 W. JACKSON BOUL. 15-story, roof-house, basement and sub-basement, fire-resistive building
occupied by C. B. & Q. Railroad Co. as offices, with bank tenant on ground floor.

331-333 S. CLINTON ST. 5-story and basement, joisted brick building, with multiple tenants. Property
loss, partial.

519-529 W. VAN BUREN ST. 4-story and basement, joisted brick building, with multiple tenants.
Adjusted loss on building, \$11,267.16.

531 W. VAN BUREN ST. 4-story and basement, joisted brick building, with multiple tenants. Ad-
justed loss on building, \$2,630.33.

407-409 S. CLINTON ST. 4-story and basement, joisted brick building, sprinklered, with multiple
tenants. Adjusted loss on building, \$12,187.50.

NOTE.—Where no figures are stated, it is for the reason either that adjustment has not been com-
pleted, or that figures were not obtained.

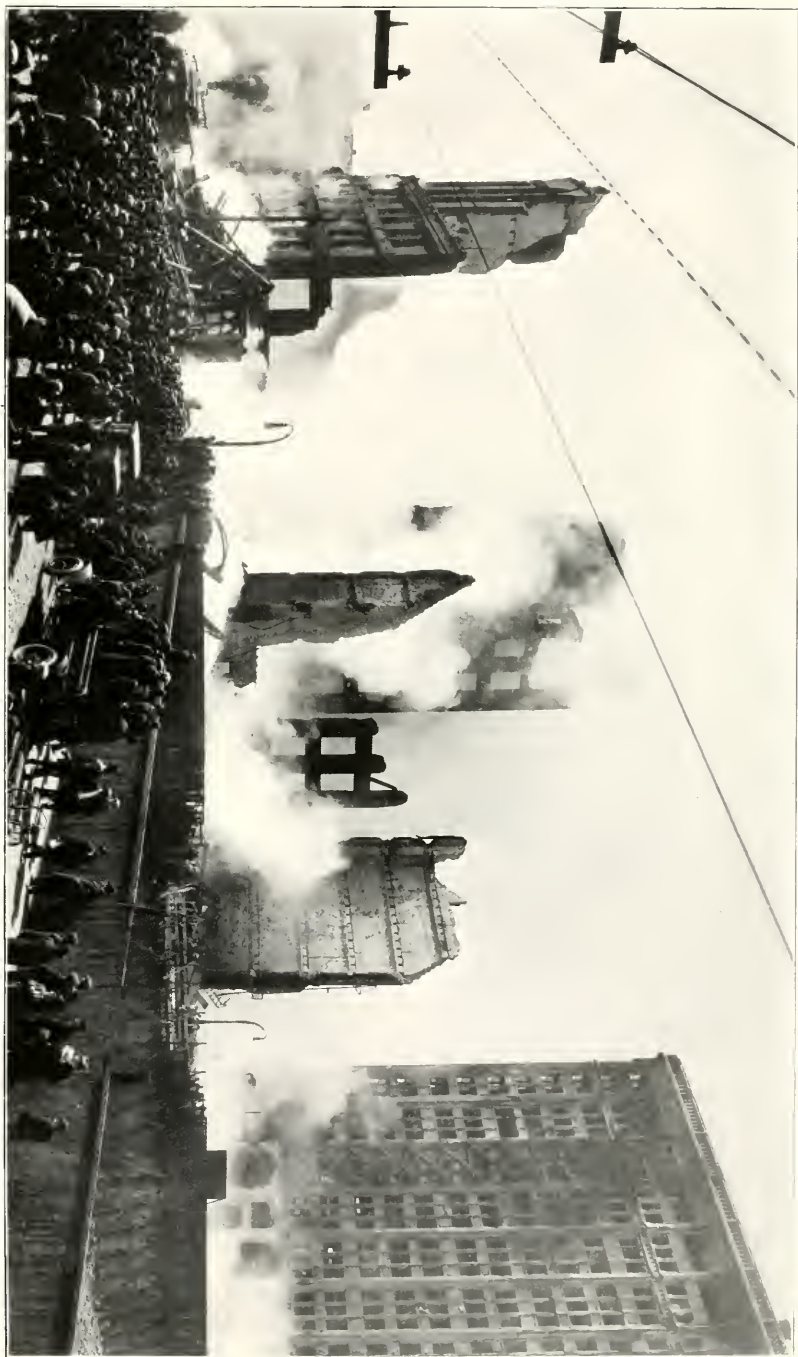


FIG. 1B.
PRINCIPAL BUILDINGS DESTROYED OR DAMAGED, LOOKING SOUTH.
(PHOTO BY INTERNATIONAL)

2. PUBLIC FIRE APPARATUS AND PERSONNEL PRESENT—

51 engine companies (43 having motor pumps)
6 hook and ladder companies
7 squad companies
2 fire boats
4 fire insurance patrols
1 fire marshal
8 assistant fire marshals
6 battalion chiefs.

3. FIRE ALARMS SOUNDED AND APPARATUS RESPONDING—

12:50 A. M. Still alarm to Reserve Co. 94.

1-horse hose-wagon
1 horse-drawn steamer.

12:50 A. M. Box 276 (located at Van Buren and Canal Streets).

Engine Co's 1, 10 and 40
H. & L. Co. No. 6
Patrols Nos. 1 and 2
Fire-boat Graeme Stewart
1st Asst. Fire Marshal (Buckley)
Chiefs of 1st and 25th Battalions.

Second Alarm, 12:54 A. M. Special from Box 276.

Engine Co's 7, 17, 21, 34 and 103
H. & L. Co's 5 and 2
Squad Co. 1
Patrols 6 and 8
Chief 7th Battalion.

Third Alarm, 12:58 A. M. Special from Box 276.

Engine Co's 6, 13, 18 and 32
H. & L. Co. 9
Squad Co. 8
Fire boat D. J. Swenie
Fire Marshal (O'Connor)
2d Asst. Fire Marshal (McDonnell)
3d " " " (Seyferlich)
4th " " " (McAuliffe)
5th " " " (Egan)
7th " " " (Smith)
8th " " " (Corrigan)

First Special Call, 1:00 A. M.

Engine Co's 3, 12, 15, 25 and 43

Second Special Call, 1:13 A. M.

Engine Co's 8, 23, 31, 98 and 107

Third Special Call, 1:15 A. M.

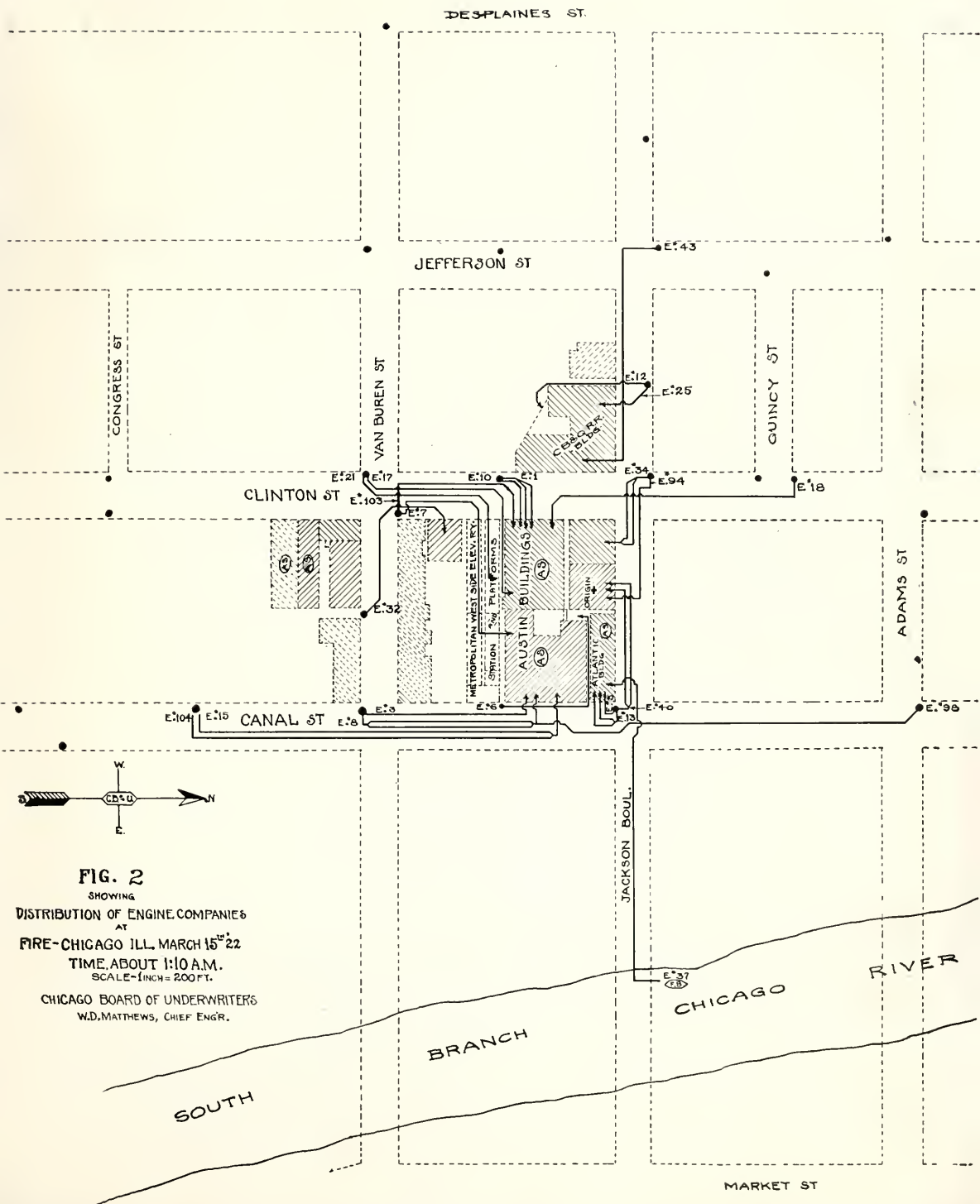
Engine Co's 11, 27, 30, 42 and 104

Fourth Special Call, 1:22 A. M.

H. & L. Co's 9, 14 and 31
Squad Co's 7 and 10

Fifth Special Call, 1:27 A. M.

Engine Co's 9, 16, 28, 44 and 93



Sixth Special Call, 1:35 A. M.

Engine Co's 14, 22, 26 and 57
Chiefs of 6th, 8th and 9th Battalions

Seventh Special Call, 1:49 A. M.

Engine Co's 29, 33, 48, 85 and 95

Eighth Special Call, 1:54 A. M.

Engine Co's 38, 39, 50, 59 and 114

Ninth Special Call, 2:04 A. M.

Engine Co's 2, 19 and 55
Chief of 2d Battalion

Tenth Special Call, 4:56 A. M.

Squad Co's 3 and 6

4. LOCATION OF APPARATUS—

Fig. 2 shows the distribution of companies at about 1:10 A. M., or 20 minutes after the first alarm was sent out. At this time there were seven engines and a fire boat working on the east and north sides of the fire and eleven engines working on the west and south sides of the fire. Apparently the firemen had been driven out of the Jackson Boulevard buildings, the interior court yard and the northern sections of the Austin Buildings and were retreating from the Atlantic Building.

Shortly after 1:50 A. M. the fire had extended throughout the sections of the Austin Buildings, the Atlantic Building, and No. 331-333 S. Clinton Street; the Burlington Building was ablaze and the fire department was concentrating on this. At about this time the companies were engaged as follows (see Fig. 3): Six engines and a fire-boat line to the Atlantic Building; eight engines on the Canal Street side of Austin Buildings; one engine with siamesed lines on No. 517-523 W. Jackson; four engines on Clinton Street side of Austin Buildings; four engines on the elevated structure and No. 331-33 S. Clinton Street; seven engines on the buildings along Van Buren Street; at this time or shortly after, thirteen engines working on the Burlington Building.

At the peak of the fire, about 2:00 A. M., the gallons of water per minute being thrown on the fire are figured at 16,680, distributed as follows:

Atlantic Building.....	2,580	gallons
Austin Buildings (Canal St.).....	3,140	"
Austin Building (Clinton St.).....	1,780	"
Jackson Boulevard Buildings.....	700	"
North side Van Buren St.....	1,350	"
South side Van Buren St.....	2,300	"
Burlington Building.....	4,830	"
	<hr/>	
	16,680	"

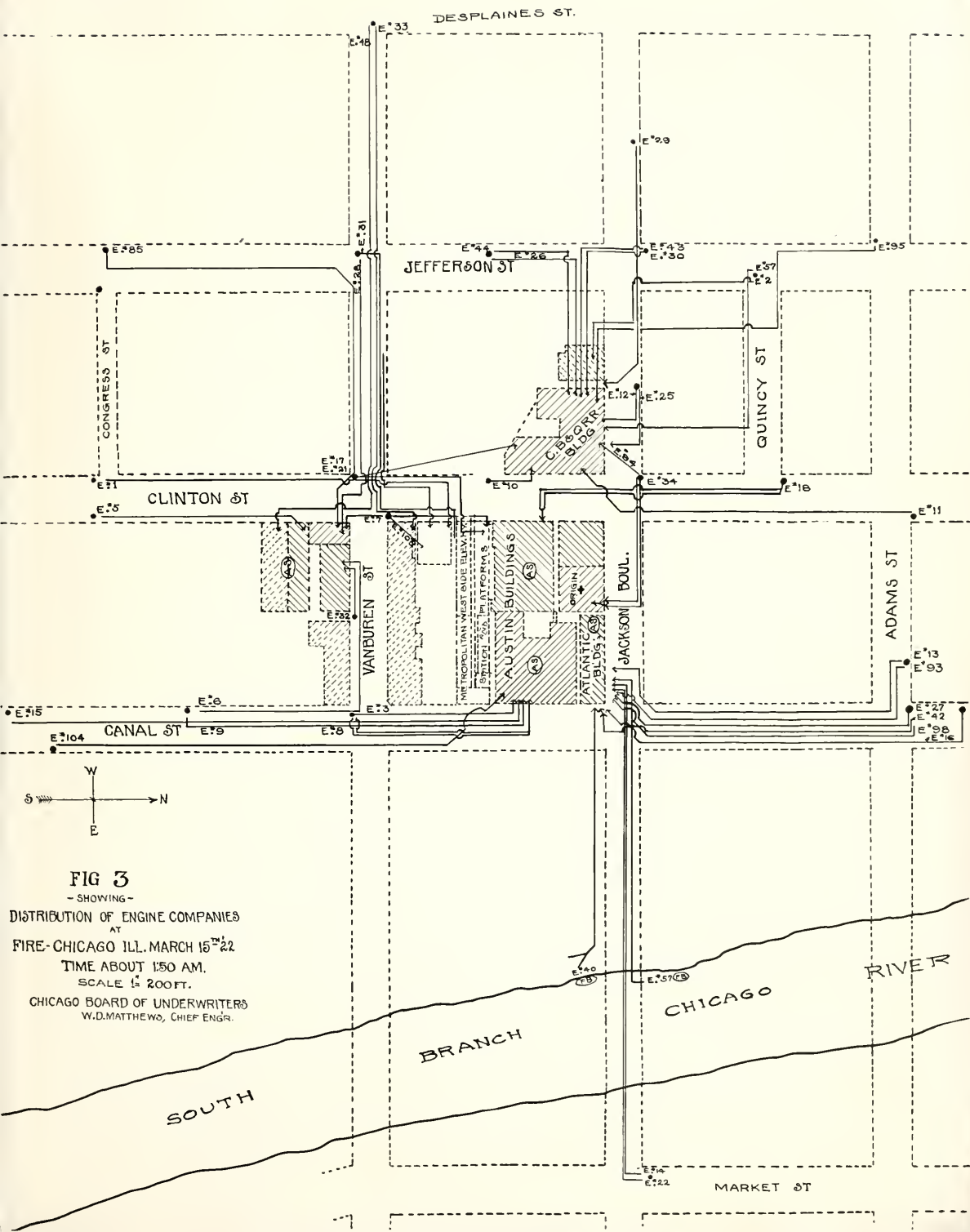
5. WATER SUPPLY—

At the Harrison Street station an additional pump was put into operation and all pumps were operated at more than their rated capacities, pressure (30 pounds) being maintained above normal (26 pounds) for that period of the day. An additional pump could not be operated owing to insufficient well capacity.

Four pumps were in operation, but not pumping at full capacity at the Fourteenth Street station. An additional pump was out of service undergoing repairs. Pressure maintained was one to two pounds below normal (31 pounds).

Three pumps were in operation, but not pumping at full capacity, at the Chicago Avenue station. Three additional pumps (105 M. G. D.) were held in reserve. Pressure maintained (32 to 33 pounds) was slightly below pressures at same period on preceding two mornings, but above the pressure (30 pounds) ordered to be maintained during this period of the day.

As far as ascertained the water department was not requested to furnish more water or higher pressure.



6. STORY OF FIRE—

< When the alarm came in for this fire from box 276 (located at W. Van Buren and S. Canal Streets) the men and apparatus that ordinarily would have responded were out on an alarm from box 277 (located at W. Adams and S. Canal Streets) for a small fire at 110 S. Canal Street.>

Reserve Engine Co. 94, located at 322 S. Jefferson Street, about two blocks from the seat of the fire, and consisting of a horse-drawn steamer and one-horse hose wagon, was first notified (still alarm) by the fire alarm office; this alarm was immediately followed by a special call at 12:50 A. M., which sent out the three engine companies, truck, squad, two patrols, fire boat, and officers previously mentioned. First Asst. Fire Marshal Buckley, arriving about 12:53 A. M., took command and sent in the succeeding alarms from time to time as noted.

That the fire had been under way for a considerable length of time before the fire department arrived is evidenced by the statement of Chief Buckley that upon his arrival he immediately ordered the men of Engine Co. 94 out of the first floor of No. 517-523 W. Jackson Boulevard because fire was dropping through the second floor; Chief Buckley also testified that the upper floors of No. 309-313 S. Clinton Street were heavily charged with smoke when he arrived. The testimony of W. I. Lehman, a postal clerk employed at the Quincy Station of the Chicago Post Office, located at Quincy and Jefferson Streets, shows that he first noticed the fire at about 12:50 A. M. in the second floor of No. 521 W. Jackson Boulevard and that at that time the fire was through the roof. This man also testified that he told one of the mail truck chauffeurs to go to Engine Co. No. 94 quarters and give them the alarm, and that he went to Canal and Van Buren Streets and turned in an alarm from box 276.

The fire spread through unprotected openings from the building in which it originated across a narrow alley into the Austin Buildings on S. Clinton Street, thence across the court east into the Austin Buildings on S. Canal Street, thence northward into a narrow 5-foot wide passageway against the wired glass windows in each floor of the 8-story Atlantic Building. It must be assumed that No. 517-523 W. Jackson Boulevard, although only a 2-story building, also contributed some degree of exposure to the unprotected openings in three upper floors, west wall, as well as to the wired glass windows in south wall of the Atlantic Building. Some idea of the rapidity of the fire spread and the quick destruction may be gained from the testimony of Second Asst. Fire Marshal J. C. McDonnell (Chief of the Bureau of Fire Prevention) who stated that he arrived at the fire about 1:04 A. M., that the fire was burning fiercely in the Clinton Street Austin Buildings, had communicated to No. 306-312 S. Canal Street and was threatening the Atlantic Building. He found the men connecting the second line from Engine 13 to Siamese connection on Atlantic Building supplying sprinkler equipment and ordered another line in. He reported three companies working in this building still confident that it might be saved. He then went to the intersection of Clinton and Jackson where he met and reported to Chief Buckley, and saw the west wall of Nos. 309-19 S. Clinton Street falling into the street—this according to his best belief being not more than 30 minutes after he was notified of the fire (12:58) or approximately at 1:30 A. M. At that time, he said, there was no evidence of fire in the Burlington Building, but he noticed that a line was connected to the Siamese steamer connection supplying the inside standpipes. He and Chief Buckley walked back toward the Atlantic Building discussing the possibilities of saving it, when they met the Lieut. of Engine 13, who was in command of the company at about the sixth or seventh floor (Atlantic) and who reported that he had been ordered out of the building. The Lieut. was ordered back, but before he got to his company the gases and smoke burst through the windows below and the men were obliged to make their escape down the fire escape. Feeling that the building was doomed and that the walls would soon fall, the two pumpers which were working on the corner were ordered out of the way.

Chief McDonnell then noticed that the wooden window frames of the Burlington Building were igniting from the ninth floor up, and he hastened to Clinton Street and as he says found window glass falling like a hail storm. Reference to the map will show that the wind was blowing from the exposure toward (angling) the Burlington Building. He states that the heat was so severe in Clinton Street that it was impossible to get to the Siamese connection again; it may be safely assumed that the temperature higher up where the full force of the radiant heat, together with the highly heated gases and burning embers, was sufficient to break the glass and ignite combustible material within the building. Undoubtedly the contents of floors above the eighth were all on fire at about the same time. There is nothing within the building, with one exception noted later, to indicate that there was a communication of fire from floor to floor through vertical openings. The appearance of the glazed terra-cotta on the court walls and west wall indicates that fire lapped from one floor to another after the wired glass had softened and let loose, but it is very doubtful if this condition contributed in any great degree to loss on contents, although it probably had much to do with the damage to the exterior of walls. Fire in this building was fought mainly from within (although streams were in use from the roofs of buildings across the street north and the building immediately west) lines being attached to inside standpipes and also taken up both stairways.

Combustible portions of the elevated railroad station south of the Austin Buildings were destroyed and some of the heavy steel members of the structure were badly distorted.

The roof and top floor of No. 331-333 S. Clinton Street were destroyed.

The buildings on the north side of W. Van Buren Street, being low, were sheltered by the elevated structure and were uninjured except for some slight scorching of exposed woodwork here and there. Jumping over the tops of these buildings, the flying brands and embers ignited the 4-story brick buildings on the south side of Van Buren Street between S. Clinton and the alley east, and also the adjoining building south on S. Clinton Street; No. 519-521 W. Van Buren Street and contents was only slightly damaged; No. 523-531 W. Van Buren Street was burned out down to the first floor; No. 407-409 S. Clinton Street, particularly the portion in Rear of No. 519-529 W. Van Buren St. was burned so badly as to drop the floors.



Fig. 4.
REAR ELEVATION OF BURLINGTON BUILDING.

There were incipient fires in numerous places as far south as Harrison Street.

It is impossible to state with any degree of certainty the chronological order in which the fire spread from building to building, but as nearly as we have learned by numerous statements of people present during the fire, the spread was in the order that the buildings are described in this report, with the probability that at some period all of the buildings involved were on fire. At just what time the situation was under control also appears questionable, but testimony of commanding officers is to the effect that it was about 2:30 A. M., or say one and one-half hours after the first alarm was sent out.

The report of James M. Gleason, automotive service engineer of the department, states that "The 43 motor-driven pumps worked 533½ hours, an average of 12.25 hours, and the 8 steam engines worked 401 hours, an average of 50½ hours. The motors consumed 2,885 gallons of gasoline, an average of 67 per pump, and 181 gallons of lubricating oil. The 8 trucks worked 119 hours, an average of 14¼ hours, and the 7 squads worked 120½ hours, an average of 17 hours plus."

7. AUTOMATIC SPRINKLER OPERATION—

As far as can be determined from watchman, fireman, and engineer on premises at time of fire, the sprinkler system (21,300 gals. in gravity and 7,790 gals. in pressure) in No. 309-15 S. Clinton St. was in service and the sprinkler alarms operated. The effect on the fire apparently was nil and can be attributed to the large number of heads operating on several floors simultaneously, limited sprinkler supplies readily exhausted, large area per sprinkler, and numerous sprinkler obstructions caused by tenants' fixtures, partitions and arrangement of stock interfering with water distribution. The fire department connected to single steamer connections on Clinton St. and continued there until driven away.

The fire having gained uncontrollable headway in No. 309-15 and the sprinkler supplies being drained, it gained ready foothold in No. 317-19 (supplied by same system as No. 309-15) thru non-automatic iron doors and across 20-foot courtway to No. 306-12 S. Canal St. (supplied by same system as No. 309-15) thru unprotected openings. From No. 306-12 it passed quickly into No. 314-18 (supplied by same system as No. 309-15) thru openings protected by non-automatic iron doors and into No. 300-2 S. Canal St. (Atlantic Building) thru wired glass windows (on the Atlantic Building) across five-foot areaway. It is claimed that the Atlantic Building first caught fire on the seventh floor, southwest part of building, but the intense heat from conflagration probably opened so many heads that the water supplies from its sprinkler system (20,300 gals. in gravity and 6,000 gals. in pressure) was distributed rather thinly and evaporated quickly. It is said that the steamer connections were a disappointment as only dribbles were noticed when they were in use. This is not surprising when it is considered that the steamer connection is a four-inch line and a sprinkler system is only sized to take care of all the heads on one floor; in this case, the number of floors that let go at once is a matter of conjecture, but no doubt there were several.

With fire inside and outside of the Atlantic Building, the temperature, no doubt, rose rapidly and caused the unprotected steel to twist and finally tumble into a tangled ruin.

The leap of the fire across the elevated structure into unsprinklered buildings on Van Buren Street was probably mainly responsible for the fire and ruin of No. 407-409 S. Clinton Street. This building was equipped with Clapp, Neracher, and Grinnell sprinklers since 1888, of which all fused except a few in an office on the first floor. The supply consisted of only 1,300 gallons in pressure, and the system also being deficient in size and arrangement of main connections and with poor distribution, naturally was unable to cope with any but incipient fires which might originate within the building.

8. A. D. T. SERVICE—

Central station watch boxes were installed and in use in buildings as follows:

Eight boxes in 309-319 S. Clinton Street, pulled 5 minutes apart, the rounds starting at 1½-hour intervals. The signal from last box pulled was recorded at 12:16 A. M.

Eleven boxes in 306-318 S. Canal Street, pulled 2 minutes apart, the rounds starting at 2-hour intervals. The signal from last box pulled was recorded at 12:18 A. M. A fire alarm signal was sent in from box located in sub-basement at 12:54 A. M.

Eleven boxes in 300-304 S. Canal Street, pulled 3 minutes apart, the rounds starting at 1¼-hour intervals. The signal from last box pulled was recorded at 1:03 A. M., five minutes after a fire alarm signal had been sent in from the box located on south wall, 7th floor.

There were no automatic fire alarm, supervisory, or valve alarm equipments in any of the buildings mentioned in this report.

9. DESCRIPTION OF BUILDINGS DESTROYED OR DAMAGED—

517-523 W. JACKSON BOUL.

CONSTRUCTION. 2-story and basement **joisted.** Area 6,240 sq. ft. **Roof** gravel on 1" boards. **Parapets** n., e. and w., 12"; s., none. **Skylights** 3 standard (poor condition). **Partitions** 1". **Decks** ordinary construction, 600 sq. ft. **Floors** cement basement, double 1" above with 1" bulkheads basement to 1st. **Ceilings**



Fig. 5.

- A. SHOWING HOLLOW BRICK PROTECTION ON EXTERIOR COLUMN, AND DAMAGE TO TERRA COTTA.
- B. DAMAGED TERRA COTTA; WIRED GLASS WINDOW AT EAST FIRE ESCAPE.
- C. ROLLING STEEL SHUTTER ON VENTILATING FAN INTAKE.

open joists, wood lath and plaster and metal sheathed. **Stair** basement to 2d in brick and wood lath and plaster with non-self-closing panel doors to floors. **Elevator** basement to 2d in 1" pine with non-self-closing 1" pine doors. **Exposed** unprotected openings all sides. **Communications** to 525-531 W. Jackson Boul. through sidewalk area not cut off.

OCCUPANCY. B and 1. L. Scaech, French restaurant. **Bst**—storage coal. **1st**—coal range and gas plate. B and 1. West Side Welding Works. **Bst**—storage iron. **1st**—shop, oxy-acetylene welding outfit with 3 extra tanks. Symond & Co., stock and sales automobile accessories. 1 and 2. Chicago Lamp & Fixture Co., mfg. electric floor lamps. **1st**—crating and shipping, 12 bales excelsior in open. **2d**—sewing lamp shades, wiring and finishing lamp stands, varnish, shellac and alcohol in barrels, 5 gals. gasoline in approved safety can.

525-531 W. JACKSON BOUL.

CONSTRUCTION. 1- and 2-story and basement **joisted**. Area 4,400 sq. ft. **Walls** brick, plain finished and plaster furred. **Roof** gravel on 1" boards. **Parapets** n. and w., 12"; e., 1-story higher; s., 6". **Floors** cement basement, double 1" above. **Ceilings** open joists, wood lath and plaster, and wood sheathed. **Stairs** 1 basement to 1st, 1" automatic trap; outside stair to 2d; 12 x 12" unprotected opening basement to 1st. **Exposed** unprotected openings all sides. **Communications** east to 519-529 through sidewalk area not cut off.

OCCUPANCY. **Bst**—Owner, hot-air furnace, storage fuel. Manus, storage empty wood flower boxes. **1st**—S. Chernobitsky, mfg. cigars, 1 hand; pool room, 2 tables. Lambro's Restaurant, coal range, gas broiler, gas warming table. Burlington Soft Drink Parlor, stock and sales soft drinks. Chicago Tool Steel Co., hack-saw, drill, swing-saw, portable forge, 5 gals. kerosene. **2d**—vacant.

309-319 S. CLINTON ST. AND 306-318 S. CANAL STREET (AUSTIN, formerly SPRINGER BUILDINGS).

CONSTRUCTION. NO. 309-315. 7-story and basement **joisted**. Area 8,635 sq. ft. **Walls** plain brick. **Parapets** n., e. and s., 30"; w., 24". **Roof** gravel on 1" boards on ordinary joists on 10 x 10" wood girders and posts. **Skylights** 4 standard. **Partitions** 1" and glass. Frame elevator head. **Floors** cement basement, double 1" above on ordinary joists on 12 x 14" girders on unprotected iron columns basement, and on 10 x 10" to 14 x 14" wooden posts above. **Ceilings** open, metal and wood sheathed. **Stair** and **elevator** 1st to 7th partly in 1" and glass hallway. **Elevator** basement to 7th in 1" pine with non-self-closing 1" and glass doors. **Exposed** n., e. and w., unprotected openings. **Communications** south to No. 317-319 through unprotected openings basement and through non-automatic iron doors each floor above.

NO. 317-319. 1-story = 1-story and basement, and 7-story and basement **semi-mill**. Area 6,610 sq. ft. **Walls** plain brick; interior brick wall around boiler room. **Parapets** n., 60"; e. and w., 36"; s., 24". **Roof** gravel on 2" on 6 x 12" beams on 10 x 10" girders and posts. **Partitions** 1" pine and glass. **Skylights** 3 standard. Brick elevator head. Metal-clad frame tank-house. **Floors** cement basement, 1" on 2" above on 6 x 12" beams on unprotected iron columns basement, and on 10 x 10" to 14 x 14" wooden posts above. **Ceilings** tile in boiler room, wood sheathed part 1st, open mill elsewhere. **Stairs** 1 basement to 1st in 1" pine hallway 1st with non-self-closing ordinary panel door; 1 1st to 7th in 1" pine and glass hallway each floor with numerous non-self-closing ordinary panel doors. **Elevator** basement to 7th in brick, non-automatic iron doors. **Exposed** e., s. and w., unprotected openings. **Communications** north to No. 309-315 as noted above.

NO. 306-312. 8-story, basement and sub-basement **semi-mill**. Area 5,579 sq. ft. **Walls** brick, part sheathed 1st. **Roof** gravel on 2" boards on 6 x 12" beams on 10 x 10" girders and posts. **Parapets** n., e. and w. 24"; s., 36"; **Skylights** 2 sawtooth, heavy glass in metal; 3 heavy glass in metal. Metal-clad frame stair-head, roof-house, elevator-head, and tank-house. **Floors** cement sub-basement; 2" basement, 1st and 2d, and 1" on 2" above on 6 x 12" beams on 10 x 10" to 16 x 16" wood girders and posts, except unprotected cast-iron columns sub-basement to 1st. **Ceilings** part wood sheathed 1st, open mill elsewhere. **Stair** 1 sub-basement to roof in 1" and thin glass hallway with non-self-closing panel doors. **Elevators** 1 basement to 8th in 1" and glass; 1 sub-basement to 8th in brick shaft with non-automatic iron doors to No. 306-12 and to No. 314-18. **Exposed** n., e. and w., unprotected openings. **Communications** south to No. 314-18 through common elevator shafts with single non-automatic iron doors, and basement, 5th and 8th through double non-automatic iron doors.

NO. 314-18. Similar to above except: Area 10,800 sq. ft. **Skylights** 4 heavy glass in metal. Metal-clad frame elevator-head. **Exposed** e., s. and w., unprotected openings. **Communications** north to No. 306-12 as noted above.

OCCUPANCY. NO. 309-15. 25 tenants, principally wood- and metal-workers and printers.

NO. 317-19. 18 tenants, principally wood- and metal-workers and printers.

NO. 306-12. 16 tenants, principally machine shops, electrical supplies, tin-shops and printers.

NO. 314-18. 21 tenants, principally electrotypers, printers, sewing risks.

PROTECTION. Partial A. D. T. watch service. City department. Grinnell "1903" sprinklers since 1918 (piping since 1887-1892). **Unprotected areas** sidewalk spaces, hallways 1st, 1-story portion, and numerous interfering partitions and decks. **Wet** system except dry in part of basement in No. 314-18, and minor portions. **Heads** upright, regular, cover (avg.) 85 sq. ft.; total 4,193, on floor (max.) 154 in basement of No. 306-12, on dry

100. **Supply** 21,300 gals. in gravity with $17\frac{1}{2}'$ head, and 3,400 gals. in **pressure** on No. 306-12; 1,590 gals. in **pressure** on 6th floor of No. 309-15; 2,800 gals. in **pressure** on roof of No. 317-19; 4 single steamer connections. Grinnell alarm and dry pipe valve. Post indicator valve in sub-basement of No. 306-12. O. S. & Y. system control. Bell and annunciator in sub-basement of No. 314-18; outside gong. Equipment graded 5/10 of standard.

NO. 300-304 S. CANAL ST. (ATLANTIC BUILDING).

CONSTRUCTION. 8-story, basement and sub-basement **semi-mill**. **Area** 6,975 sq. ft. **Walls** 12" brick filler on skeleton steel frame north, east and south; self-supporting brick west. **Parapets** n. and e., street; s., 36"; w., 18". **Roof** gravel on 3" plank on 6 x 12" beams on unprotected steel girders on built-up steel posts in wire lath and plaster. Metal-clad frame tank-house. Brick elevator head. **Partitions** 1" pine and glass. **Floors** cement sub-basement and basement; 1" on 3" above on 6 x 12" beams on unprotected steel girders on built-up steel posts protected by wire lath and plaster. **Ceilings** open mill. **Stair and elevator** in brick shaft with non-automatic iron doors to floors. **Elevator** in brick with Meeker type doors. Cable openings each floor. **Exposed** n. and e., streets; s., wired glass windows; w., unprotected openings 6th up, blank below.

OCCUPANCY. 14 tenants, principally machine shops, tailor shops, and printers.

PROTECTION. Watchman; A. D. T. boxes. City department. Niagara "B" sprinklers since 1918; piping since 1899. **Unprotected areas** none. **Wet** system; loading area shut off in winter. **Heads** upright, regular, cover (avg.) 56 sq. ft.; total 1,735, on floor (max.) 190 in basement. **Supply** 20,300 gals. in **gravity** with 22' head; 3,000 gals. in each of 2 **pressures**; 2 steamer connections. Niagara-Hibbard alarm valve. Tank, system and floor control. **Bell** 1st, 3d and 7th; bell and annunciator in boiler room. Equipment graded 9, 10 of standard.

NO. 541-553 W. JACKSON BOUL. (C. B. & Q. R. R. CO. OFFICE BUILDING).

CONSTRUCTION. 15-story, roof-house, basement and sub-basement fire-resistive building. Built in 1913. **Height** 195 feet. **Area** 22,894 sq. ft. Skeleton type construction. **Girders** built-up steel plates and angle construction, 24" to 28" x $1\frac{1}{2}"$ to $3\frac{1}{4}"$ plates with 4 x 4" to 6 x 6" angles, 100# to 120# per foot. 21' to 25' span on exterior columns and 13' span on interior columns. **Beams** principally 12-inch, 31 $\frac{1}{2}$ # to 50# and 15-inch, 42# to 65# with 2- to 4 cover plates 13" x $1\frac{1}{2}"$, 6' 6" spans, with $3\frac{1}{4}"$ round tie rods, two to the span. Wind bracing consists of $\frac{1}{2}"$ to $\frac{3}{8}"$ gusset plates. **Fireproofing** beams and girders have $1\frac{1}{2}"$ shoe tile and soffit tile blocks held in place by wire and skew-backs; wall columns protected by 8" of hollow brick with spaces filled with broken tile concrete grout; interior columns protected with concrete composed of cement, sand and crushed tile, minimum thickness $1\frac{1}{2}"$ to $3\frac{1}{2}"$ outside of steel, approximately 50% of columns have additional protection of $3\frac{1}{2}"$ hollow tile, and all column protection is covered with $3\frac{1}{4}"$ cement plaster. **Foundations** caisson construction of reinforced concrete cylinders 6' 0" to 9' 4" in diameter extending to bed rock. Grillages of steel I's top the cylinders.

Note: Foundations and steel work designed to accommodate 6 additional stories. **Columns** built-up steel of multiple plate and angle construction including one, two and three webs, sizes varying from $13\frac{1}{4}"$ x $14"$ with 4" x 6" angles on the one-web, to $15\frac{1}{2}"$ to 20" x 18" to 21" with 6 x 6" angles on the three-web type. **Walls** plain plastered and tile furred curtain type 12" brick with ornamental terra-cotta facing between large window areas on street walls north and east, and glazed terra-cotta brick on west and south walls and in court. **Partitions** numerous 3" hollow tile laid on cinder concrete with glass panel wood doors various floors around offices. Marble wainscoting in hallways. Floor areas principally unbroken. **Roof** 1" flat English tile on cinder concrete on flat tile arches except hip sections which are 1" flat tile on 1" cement on 4" book-tile laid in inverted T's with lower side and soffits protected with wire lath and cement plaster; no roof space. **Roof structures** 1- and 2-story brick loft and pent-house with 12" brick walls; roof same construction as hip sections. **Skylights** wired glass in metal frames. **Cornice** ornamental terra-cotta on steel framing. **Floor arches** 15" hollow tile, side construction; arches in 5th, 8th, 10th, 13th and 15th floors have, superimposed on above construction, 20" hollow tile (3" thick, on edge) laid on $4\frac{1}{4}"$ cinder concrete, to accommodate reinforced concrete ventilating ducts. See Fig. 8 (b). **Floor finish** marble in hallways and toilets; $\frac{3}{8}"$ maple elsewhere (except linoleum part of one floor) on 2 x 4" nailing strips embedded in $4\frac{1}{4}"$ of cinder concrete; cement in basement and sub-basement (all of sub-basement and part of basement floor is concrete on ground.) **Ceilings** plain plaster on tile except small amount of suspended wire lath and plaster on 11th floor and wire lath and plaster suspended on 2 x 4" wood studs with flaxinum felt insulation over fan machinery rooms on various floors. **Stairs** two sub-basement to basement enclosed in 3" tile with art metal doors to floors; one sub-basement to roof-house, and one 1st to roof-house in 3" tile shaft with wired glass panel art metal doors to floors. See Fig. 8 (a). **Elevators** two banks of four 1st to 15th in practically double 3" tile shaft with 6" dead air space, front being wired glass (in cast-iron frame) including doors to hallway all floors; two (freight) sub-basement to 1st in 6" tile shaft with Meeker type iron doors to floors; one (freight) sub-basement to 15th in 6" tile shaft with Meeker type iron doors to stair shaft all floors; one dumb waiter 2d to 9th and one basement to 15th in 3" tile shaft with 4 x 4" wired glass panel iron doors to floors; one small private elevator 11th to 13th in 4" tile shaft with ordinary glass and cast-iron doors to tile vestibules all floors. **Pipe-shaft** basement to 15th in tile shaft with #12 iron doors to closet all floors. **Vaults** built on all floors of triple wall construction consisting of outer and inner wall of 3" hollow tile with 6" reinforced broken tile concrete center. Floors and ceilings are $1\frac{1}{2}"$ reinforced concrete finish with $\frac{1}{4}"$ reinforcing rods tied into beams and girders. Doors of vault type having $1\frac{1}{4}"$ stiffened outer door and #14 inner door with 20" steel vestibule. See Fig. 8 (c). **Exposed** north, unprotected openings to 66' street; south (except in court walls), wired glass in metal frame windows to elevated structure; east, unprotected openings except wired glass in metal frames at fire escape to 80' street; west, wired glass in metal frame windows across 18' alley to 7-story sprinklered building. **Parapets** 6' 0" all sides.

OCCUPANCY. Sub-basement—boiler and engine room. **Bst**—building machinery and storage old records, etc. **1st to 15th**—C. B. & Q. R. R. Co., general offices. **Part 1st**—banking rooms.

PROTECTION. City department. Watchman with Newman clock; 2 stations each floor; hourly rounds in sub-basement, basement, 1st and 2d; three rounds during the night 3d to 15th floors. Two 4" standpipes with 100' of linen hose and 2½" city connections each floor; 6" connection from 2 pressure tanks in basement supplied from 3 American Steam Pump Company's compound single-acting steam pumps, 10" and 16" x 9¼" x 16", capacity 350 gals., maintaining a pressure of 100 lbs. and 150 lbs., respectively on each tank, 6" suction to 8" city main; two 4" connections with gate and check valves from Siamese steamer connection, each on Clinton St. and Jackson Boul. Approved 2½-gallon chemical extinguishers were installed and distributed, 3 each floor.

NO. 331-333 S. CLINTON ST.

CONSTRUCTION. 5-story and basement **joisted**. Area 3,000 sq. ft. **Walls** brick. **Parapets** 12" to 36". **Roof** gravel on 1" boards on ordinary joists. **Skylights** non-standard. **Floors** double 1" on ordinary joists; 1" bulkheads bst to 1st. **Ceilings** mainly open joists; part metal and wood sheathed. **Stair** 1st to 5th in 1" pine and brick with non-automatic wood panel doors to floors. **Elevator** 1st to 5th in wood lath and plaster basement and 1" pine 1st to 5th with 1" pine non-automatic doors to floors. **Exposed** n. and e., unprotected openings; w., street; s., blank.

OCCUPANCY. Multiple, principally machine and woodworking shops.

NO. 519-529 W. VAN BUREN ST.

CONSTRUCTION. 4-story and basement **joisted**. Area 6,160 sq. ft. **Walls** brick. **Parapets** sub-standard. **Floors** double 1" on ordinary joists. **Ceilings** part 1st and 2d sheathed with cardboard and plaster board, balance open joists, wood lath and plaster and metal. **Stairs** 2 basement to 1st hooded in 1" pine with self-closing 1" pine doors 1st; 1 open basement to 1st; 1 street and 1st to 4th in 1" pine enclosure with non-self-closing wood panel doors to floors; 1 interrupted 1st to 4th enclosed on each floor in 1" pine with ordinary panel doors to floors. **Elevator** basement to 4th, in 4" plaster block with non-automatic tin-clad door basement, in 1" pine 1st to 4th with self-closing 1" pine doors. Small belt openings 3d to 4th. **Exposed** n., street; e. and s., poor iron shutters. **Communications** west through 5 openings protected with double automatic #12 iron doors; south several unprotected openings through outside partially enclosed elevator shaft to No. 407-409 S. Clinton St.

OCCUPANCY. Multiple, principally machine and electrical supplies shops and brass foundry.

NO. 531 W. VAN BUREN ST.

CONSTRUCTION. 4-story and basement **joisted**. Area 2,590 sq. ft. **Walls** brick. **Parapets** 36". **Roof** gravel on 1" boards on ordinary joists. **Skylights** non-standard. **Floors** double 1" on ordinary joists; 1" bulkheads basement to 1st. **Ceilings** ½ of 3d wood sheathed, balance open joists and metal. **Stairs** 1 basement to 1st, open; 1 1st to 4th in 1" pine enclosure with non-automatic glass panel doors to floors. **Elevator** outside 1st to 4th, open 1st and 2d, enclosed in corrugated iron 3d and 4th with non-automatic #12 iron doors to floors. Small belt-hole openings 3d to 4th. **Exposed** n. and w., streets; s., blank wall; e., unprotected openings. **Communications** east one opening, 5' x 7', protected with double #12 automatic iron doors; 1 small unprotected shaft opening; 2 unprotected openings through outside elevator shaft partially enclosed in corrugated iron.

OCCUPANCY. Print shop, electric shop (lathe, drill-press, 20 screw machines), plating works (4 plating vats, lacquering), restaurant.

NO. 407-409 S. CLINTON ST. UNION STORAGE & MFG. CO. BUILDING.

CONSTRUCTION. 4-story and basement **joisted**. Area 5,550 sq. ft. **Walls** brick, sheathed part 1st. **Roof** gravel on 1" boards on ordinary joists on 8 x 8" girders and posts. **Parapets** n., 12"; e. and w., 18"; s., higher building. **Partitions** 1" pine and glass. **Skylights** 3 heavy glass in metal-clad frames. **Floors** double 1" on ordinary joists on 8 x 8" to 10 x 10" posts and girders. **Ceilings** wood sheathed part 1st, open joists elsewhere. **Stair** basement up in 1" pine, wood doors. **Elevator** basement up in 1" pine, 1" doors. Belt openings each floor. **Exposed** unprotected openings all sides. **Communications** south to No. 411-413 through non-automatic double iron doors basement and through double automatic tin-clad door 2d, 3d and 4th.

OCCUPANCY. **Bst**—vacant. **1st**—Poster Advertising Assn., mfg. metal bill boards, storage lumber, sheet metal and paper. **2d**—R. D. Swisher, storage office files, lumber, old machinery, cardboard boxes, grinding talcum powder and plaster of Paris, power grinder and mixer. **3d**—Overbaugh & Ayers Mfg. Co., storage metal reflectors in barrels and cartons, 3 paint sprayers, gas-heated Japan oven, gallon gasoline in approved safety can. **4th**—Baldwin Brass Works, stock brass tubing, iron, steel, brass parts, lumber and wood patterns and brass lacquering.

PROTECTION. City department. Clapp, Neracher, and Grinnell sprinklers since 1888. **Unprotected areas** sidewalk space. **Dry** system. **Heads** upright, regular, cover (avg.) 90 sq. ft.; total 370, on floor (max.) 81 on 4th. **Supply** 1,300 gals. in **pressure**; single steamer connection. Grinnell alarm and dry pipe valve. Over-head feed. **Bell** 2d. Equipment grades 4/10 of standard.

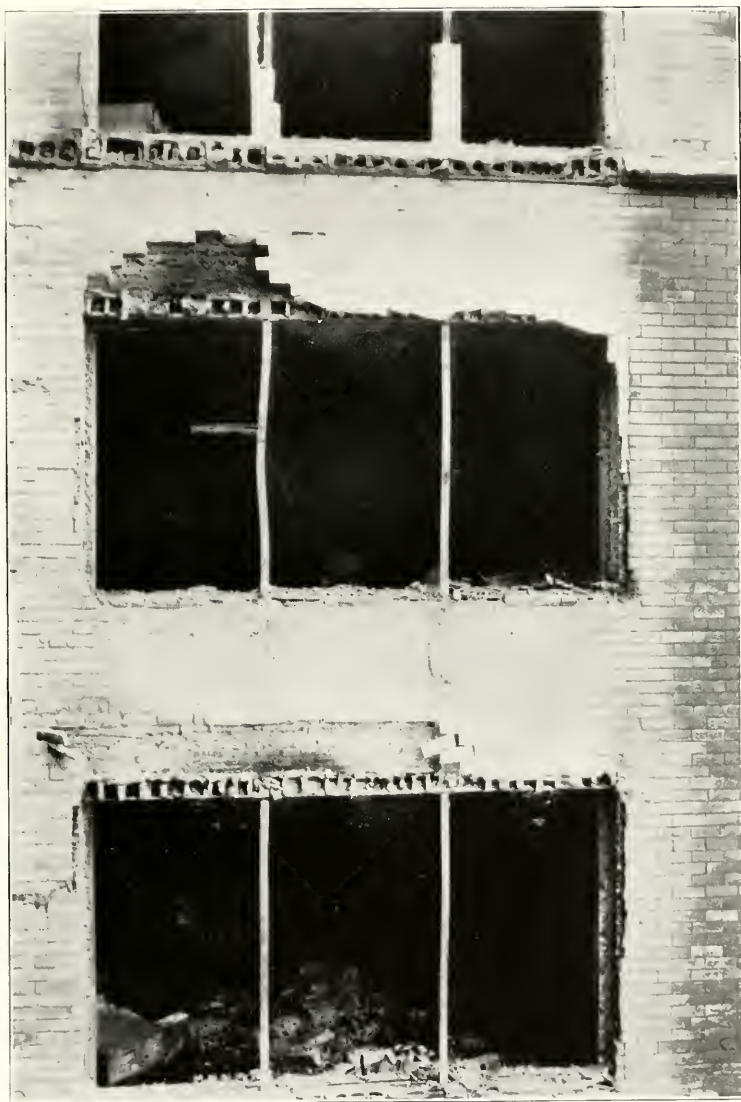


Fig. 6.
EAST WALL OF COURT, 13TH, 14TH AND 15TH FLOORS. NOTE DAMAGE TO TERRA
COTTA BRICK.



Fig. 7.

- A. SHOWING DAMAGE TO HOLLOW TILE PARTITION AND PLASTERED CEILING.
- B. METAL FILING CABINETS.
- C. VENTILATING FAN ROOM.
- 4. INTERIOR COLUMN AT RIGHT; DAMAGED PORTION IS PIPE ENCLOSURE.

10. FIRE-RESISTIVE CONSTRUCTION—

The "Burlington" (C. B. & Q. R. R.) building, a 15-story fire-resistive structure, suffered damage on upper eight floors, caused by exposure from severe fire across an 80-foot street to the east, there being a 12- to 14-mile wind blowing from the northeast. The high temperature and flying brands from exposures cracked glass, ignited wooden window frames and light combustible contents, which in turn set fire to combustible structural material such as wooden flooring, doors, frames, etc.; this added to the already excessive heat wave, which entered the east windows and swept on through the floors and around into the west wing, melting out the wired glass windows. The flames then lapped upward on west and court walls into windows of floors above, which probably accounts for the fact that temperatures were much higher on the top floors than on the floors below.

Each floor, apparently, was a separate, distinct and simultaneous fire. In only one case was it noted that fire traveled vertically within the building; this was that of a small private elevator which ran from the 11th to 18th floor, and taking into consideration the short duration of the fire, it is questionable whether this contributed in any way to the damage on any of these floors except that it allowed fire to enter rooms enclosed by tile partitions, which perhaps might otherwise have held.

TERRA-COTTA—

Ornamental mat glazed terra-cotta facing was used on north and east walls; glazed terra-cotta bricks on south and west walls and in court. There was damage to this material on all four sides of the building, the heaviest damage occurring in east wall, and in the court walls. Figures 5 and 6 indicate the amount of spalling that took place, but it is believed that some of this damage may be attributed to falling sash weights. In addition to the spalling, the blocks that were most exposed were badly checked; the checks, in several blocks examined, extending through the blocks.

WIRED GLASS—

Labeled wired glass windows were installed in openings in south and west walls, and in three openings each floor above first at fire escape, east wall. Those in east wall were intact below the 9th floor, the ones above suffering in varying degrees, but generally softening and running out of frames onto sills, or dropping over steam radiators located just below the sills. Those in west wall, above the 9th floor, experiencing even greater heat, behaved in the same manner permitting flames to lap up the wall and damage the terra-cotta brick facing. **Also see Vertical Shafts.**

ORDINARY GLASS—

Ordinary glass windows in wooden frames were installed in north and east street walls (except at fire escape, east) and in north, east, and west walls in court. With the exception of those below the 9th floor, north street wall, the windows were nearly all destroyed.

ROLLING STEEL SHUTTERS—

This type of protection, automatic, was used on ventilating fan intake openings and prevented ingress of fire at these points. The fan machinery was located on various floors at east and west court walls, and enclosed by 3-inch hollow-tile partitions with No. 14 iron doors on interior openings which held fairly well. See Figure 5.

HOLLOW-TILE PARTITIONS—

There were no plaster block partitions in this building. All partitions were 3-inch hollow-tile laid on the cinder concrete fill on tile floor arches with no bracing except wooden door frames. Nearly all of these failed, due principally to bulging, which was so great that some sections fell out and others were pulled down by firemen as a measure of safety to themselves.

COLUMN PROTECTION—

This was, as stated in construction details, principally hollow brick on exterior columns, and crushed tile concrete on interior columns. The protection in all cases was intact, even the $\frac{3}{4}$ -inch plaster finish remaining on some columns. Tile, enclosing pipes run alongside column protection, was mainly destroyed; pipe channels were stopped at floors. At several points where steel had been exposed, after the fire, for the purpose of examination, it was found to be in an excellent state of preservation and condition. Chief Buckley, who made an examination of this kind less than eight hours after the start of fire on a column which had been severely exposed, reported steel as being only slightly warm. Temperatures were sufficient to spall off porcelain and melt the brass in flush type wall switches which were mounted on these columns.

HOLLOW-TILE FLOOR ARCHES—

The hollow-tile floor arches, as far as is known to date, suffered very little damage, except that on nearly every one of the upper eight floors more or less of the lower soffits were spalled off, due to the sudden heat and uneven expansion. The seepage of water through the upper eight floors loosened much of the plaster ceiling finish which was not spalled off by the fire. The cinder concrete top finish was of very good quality and even though the wood nailing strips embedded in same were entirely burned out, the concrete seemed to suffer only slight surface deterioration.

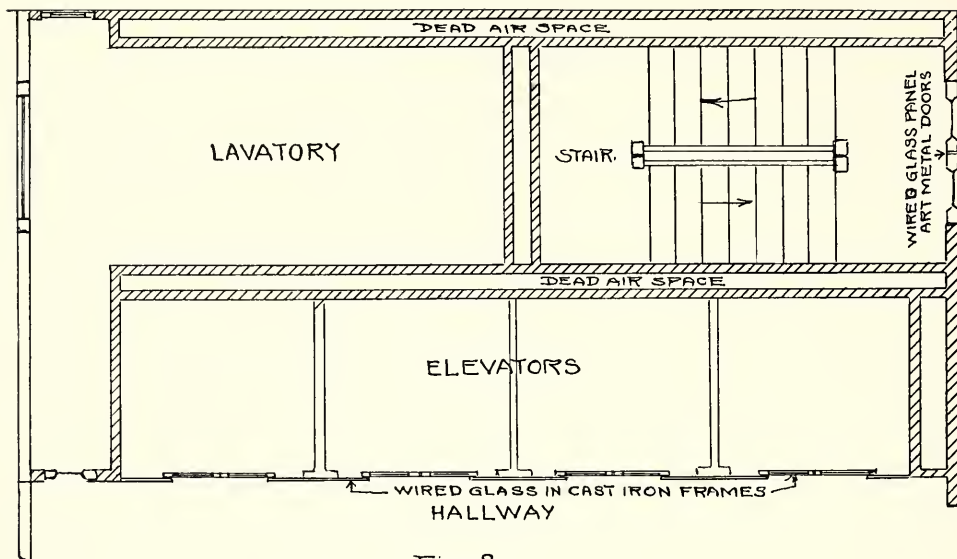


Fig. 8A.

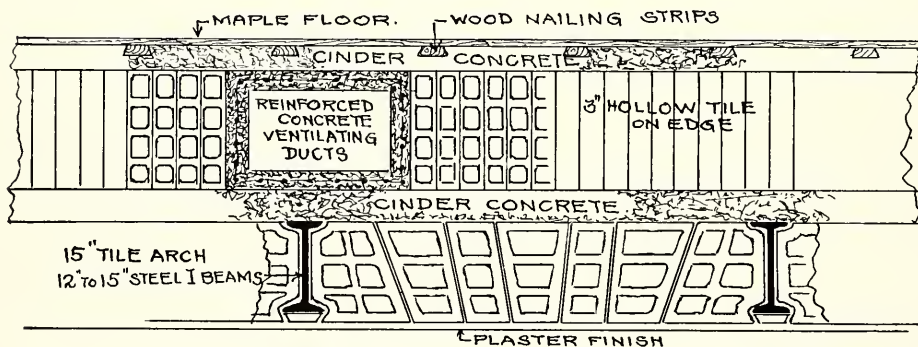


Fig. 8B.

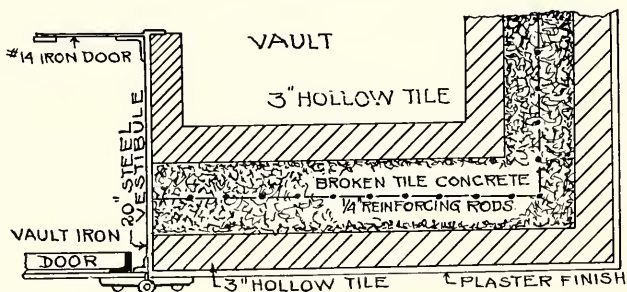


Fig. 8C.

- A. SHOWING CONSTRUCTION OF MAIN STAIR SHAFT AND ELEVATOR BANK.
- B. TYPICAL FLOOR CONSTRUCTION WHERE VENTILATING DUCTS WERE INCLUDED.
- C. TYPICAL VAULT CONSTRUCTION.

VERTICAL SHAFTS—

The stair enclosures, which were 3-inch tile with wired glass panel art metal (labeled corridor) doors, held very well. The stair in southeast corner of building showed no sign of failure except on top floors where several transom lights failed; there was evidently a cold draught up this stair as wired glass that had softened slightly was bulged toward interior of building and the variation of temperature was evidenced by the fact that the outer surface of the glass had sagged and run in places, while the inner surface was intact. The main stair shaft did not fare quite so well, numerous wired glass panels failing entirely. However, the hand-rails, which was the only combustible material present, were scorched on only two floors. This stair was used by the department in fighting the fire.

Elevator shafts, which were of the bank type with wired glass in cast-iron frame front to hallway, suffered considerably in that the fronts sagged or bellied into the building. These shafts transmitted no fire vertically, probably due to the fact that the hallways contained no combustible material. See Figure 9.

Dumb waiter enclosures of 3-inch hollow-tile with No. 14 iron doors (wired glass panels) suffered no damage and acted in no way to spread the fire.

VAULTS—

The vaults, located on all floors and in the direct path of fire, were of triple wall construction, see Figure 8 (c), with $\frac{1}{4}$ -inch steel plate outer and No. 14 inner doors with a 20-inch vestibule. They protected the contents completely.

In some cases the outer surface of tile spalled off, and in all cases the doors warped, but there was no evidence of any heat inside the vaults.

MISCELLANEOUS—

Maple floor surfacing on wooden nailing strips above the 8th floor was entirely consumed, except that on 9th and 10th floors small sections remained, but these were charred.

It was particularly noticeable that on one floor, which was surfaced with cork linoleum, the damage to structure, such as plastered ceilings, etc., was not so great as that on which wood floor surfacing was used.

Marble flooring and wainscoting, principally in hallways, failed completely, partly from heat and partly from breakage.

Porcelain in lavatories was entirely demolished at comparatively low temperatures, as fixtures showed no sign of damage.

METAL FURNITURE—

The metal furniture in use consisted principally of filing cabinets and proved absolutely no protection for the combustible contents which were ignited either by direct flame or excessive heat. The weight of records, together with the heat, caused the cases to buckle and fail at the welded joints. See Figure 7 (b).

LOSS FIGURES—

It has been the intent to include herein, if possible, figures detailing losses on the contents and the various structural items of the Burlington Building, and the issuance of the report has been delayed on this account. Demands for the report indicate that further delay is unwise and consequently it goes to press without this information, the loss still being in process of adjustment.

11. PERFORMANCE OF SAFES—

Information regarding all the safes involved in this fire is incomplete; some that were known to be in use are still buried; there were doubtless a few of which we have no knowledge.

As far as we have been informed the number of safes of various classes present was as follows: Labeled Class A, none; labeled Class B, three; labeled Class C, none; labeled Light Weight, one; labeled Insulated Cabinet, one; unlabeled Light Weight, one; unlabeled Insulated Cabinet, one; unlabeled iron with 3-inch or 4-inch walls, nine; unlabeled iron with 6-inch or 7-inch walls, four.

Unless otherwise noted, the safes mentioned below were located in the buildings east of the Burlington Building.

LABELED B SAFES (two satisfactory; one failed)—

(a) This safe was located on the 6th floor and was dug out of the ruins. See Fig. 10. Its appearance indicates that it was subjected to severe impacts as the angle-iron frame at the back had been badly bent by a blow and the weld between the vertical upright of this frame and the horizontal angle at the top was badly broken. It had also been subjected to severe blows on the frame at the bottom, as the angle-iron frame on this part was badly distorted. The whole frame at the front of the safe had bowed out considerably. The sheet steel forming the back of the member had become separated from the frame at the upper rear corner, presumably from the blow which the frame had received, and this separation extended some distance down the side, but the investigator was advised that some of this separation was due to prying done on the piece after the safe was recovered. The sheet metal forming one of the sides was badly buckled and showed evidence of having been subjected to severe blows. The metal at the top was bulged upward instead of downward, the usual distortion when the safe drops in an upright position. All metal indicated that the safe had been subjected to severe heat. There was evidently some passage

of heat to the interior of the safe as the asbestos packing of the joints was somewhat disintegrated, but this passage of heat was not sufficient to injure any of the contents. The interior appeared to be in a normal condition. The showing of the device under the conditions is considered very satisfactory.

(b) This safe fell from 1st floor into basement, right side up, with one edge protruding about eighteen inches above the debris. Two heavy cast-iron columns, two inches thick and twelve inches in diameter, were lying across the exposed edge. One of these had struck near one end and remained intact, but the other fell with such force that, apparently, it broke in two over the edge of the safe causing a deep rounded depression across this member from side to side. The safe had been subjected to intense heat, as shown by the condition of the metal on all surfaces and also by the partial fusing of the cast iron forming one of the casters. In addition to the blow from the fallen column, there were several other indentations on the safe which indicated that it had been subjected to severe impacts, either in falling or from heavy materials falling upon it. There was some penetration of heat at the joints, as shown by the condition of the paint on the edges of the joint, but this heat penetration was insufficient to injure the contents which were neither discolored nor damp. It is believed that this safe did all that any safe could reasonably be expected to do under similar conditions.

(c) This safe, largest size made by the manufacturer, fell from the third floor, was buried in debris to a considerable depth, and was subjected to the heat of the burning ruins for several weeks before being dug out. It lost its contents, undoubtedly due to more severe exposures than the label guarantees it will resist.

LABELLED LIGHT WEIGHT SAFE (partial failure)—

Falling from the third floor to basement, this safe was covered with heavy machinery and burning wreckage from several floors above. See Fig. 11. It had evidently been subjected to severe exposure, as the metal was burned on all sides, except the bottom, and the combination and one handle was melted off. Distortion of the metal also indicated that it had been subjected to severe blows. There was evidently considerable passage of flame at the joints, as noted by the condition of the paint. The owner reported that he was well satisfied with the protection afforded by this receptacle as the only material in the safe which was destroyed was the contents of one drawer which was of little value. There was some charring of the edges of other papers in the safe. It is believed that the penetration of heat into the interior was through the joint which was probably somewhat distorted by the blows to which the safe had been subjected. Credit is given the safe for resisting as much as could be expected of a device of its rating.

LABELLED INSULATED CABINET (satisfactory)—

This safe fell from the eighth floor, landing in the basement near a brick wall and was further protected from falling debris by steel beams lodged above it, although a picture indicates that it was subjected to rather severe exposure. It was cut open by use of an acetylene torch and the contents said to have been removed in perfect condition. Later the wall was razed and the safe is buried under several feet of debris. No details of condition obtained other than above noted.

UNLABELLED LIGHT WEIGHT SAFE (failed)—

From first floor to basement and covered with much debris. Contents destroyed.

UNLABELLED INSULATED CABINET (failed)—

From second floor to basement, suffered severely from both heat and impact. Cut open with an acetylene torch. Contents destroyed.

UNLABELLED IRON SAFES, 3- OR 4-INCH WALLS (3 satisfactory; 6 failed)—

- (a) 4-inch walls, 5th floor to basement. Contents destroyed.
- (b) 3-inch walls, 5th floor to basement. Contents destroyed.
- (c) No data, 5th floor to basement. Not yet found.
- (d) 4-inch (?) walls, located in basement. Contents destroyed.
- (e) 4-inch walls, 3d floor to basement. All brass work intact. Contents in perfect condition.
- (f) 4-inch walls, 2d floor to basement. Contents destroyed.
- (g) 3-inch walls with 3½-inch door, from 3d floor to basement. Contents destroyed.
- (h) 4-inch walls, 2d floor. Found on top of debris with combination slightly fused. Contents intact.
- (i) 4-inch walls, 13th floor of Burlington Building. Opened with combination. Contents slightly discolored, but not materially damaged.
- (j) 4-inch walls, 1st floor. Fell in plain sight on top of debris. Owner broke it open about 10 A. M., March 15th, and the contents burst into flames. Total loss.

UNLABELLED IRON SAFES, 6- OR 7-INCH WALLS (2 satisfactory; 1 failed)—

- (a) 6-inch walls, from 1st to basement. Contents destroyed.
- (b) 7-inch walls, from 5th to basement. Protected somewhat after falling by heavy steel beams arched above it. Door was slightly warped, but brass parts remained intact. Contents preserved.
- (c) 6-inch walls, 13th floor of Burlington Building. Combinations intact and opened that way. Contents in perfect condition.



FIG. 9.
SHOWING FRONT WALL OF ONE BANK OF ELEVATORS, PERFORMANCE OF WIRED GLASS, AND
DAMAGE TO MARBLE FLOOR.



Fig. 10A.

LABELLED "B" SAFE BEING DUG OUT OF RUINS (LEFT). NOTE DAMAGE TO BOTTOM (RIGHT).
THIS SAFE FELL FROM 6TH FLOOR.



Fig. 10B.

SHOWING DAMAGE TO CORNER OF SAFE (SAME AS 10A), AND CONDITION OF CONTENTS.



Fig. 11A.



Fig. 11B.



Fig. 11C.

Fig. 11A. LABELED INSULATED CABINET WHICH FELL FROM 3D FLOOR.
 Fig. 11B. SHOWING INTERIOR OF SAME CABINET, CONTENTS REMOVED.
 Fig. 11C. CONTENTS REMOVED FROM CABINET (11A).

12. GENERAL STATEMENTS—CONCLUSIONS—RECOMMENDATIONS.

There appears to be a well defined opinion among the firemen who arrived first at the fire, that the cause was incendiary. Testimony taken at the aldermanic investigation indicates that there was a quantity of rags soaked with filler, varnish, etc., removed from the premises of the Chicago Lamp and Fixture Co. (second floor, No. 517-523 W. Jackson Boulevard) on the day preceding the fire. If there were other such rags left in the building over night, it is possible that spontaneous combustion may have been the cause.

The fire-spread was very rapid, particularly so if none but natural causes are considered. In considering the conditions which would naturally tend to aid such a result, the following must be observed:

(a) The building in which the fire originated (No. 517-523 W. Jackson), while only two stories high, was burning fiercely when the first consignment of apparatus arrived and had already created a condition close to ignition if not actually having ignited the contents of the four upper floors of the 7-story building south across a 10-foot alley, there being no protection to exterior openings on either the exposing or exposed buildings.

(b) No. 309-315 and No. 317-319 S. Clinton Street were separated by a fire wall having openings equipped with non-automatic iron doors and may be regarded as one fire area because in all probability the doors were open. These buildings were old, of joisted and semi-mill construction, stairs and elevators mainly enclosed with light combustible and glass material, floors were oil soaked, premises were congested and heavily loaded, and there were many tenants using gasoline, making wood-working refuse and having use for cleaning rags and waste, e.g., printers and machine shops. Undoubtedly the sprinkler heads opened on many floors simultaneously and quickly drained the supplies, so that by the time the fire got into the Canal Street sections, which were dependent upon the same supplies, these latter buildings had no sprinkler protection.

(c) Extending east across a 20-foot court, a 45-foot court and across a distance of about 22 feet over the top of a 1-story building through unprotected openings, the fire found conditions in Nos. 306-312 and 314-318 S. Canal Street similar to those in the S. Clinton Street Buildings in so far as the nature of occupancy and non-automatic fire wall doors were concerned, but with a heavier type of floor construction and a better grade of floor cut-offs, these latter improvements, however, evidently counting for little, due to the intense heat which had by this time been generated.

(d) The west wall of Atlantic Building at No. 300-304 S. Canal Street, had unprotected openings in the three upper floors (6th to 8th) and no openings below; all openings in the south wall were protected by wired glass windows exposed across a 5-foot space by unprotected openings in No. 306, also diagonally about 20 feet to No. 517 W. Jackson Boulevard. The wired glass naturally proved no barrier to radiated heat at such close range, and this building ignited early on several floors and soon collapsed, the quick collapse undoubtedly being due to unprotected steel floor supports tied into exposed steel framing in north, south and east walls.

(e) Summing up the conditions which may be considered as contributory to this block conflagration, we have: 1st—tardy notification to and consequent delayed arrival of fire department; 2d—unprotected exterior openings; 3d—non-automatic fire doors; 4th—combustible buildings with poor floor cut-offs, heavily loaded and oil soaked floors and numerous tenants with hazardous occupancy; 5th—narrow spaces between buildings acting as flues and making access at first difficult and later impossible; 6th—unprotected steel floor and wall framing; 7th—sprinkler protection rendered impotent by large number of heads opened on many floors.

(f) With the entire block to the west on fire, creating high temperatures, flying embers and burning gases, and a wind blowing toward it, the Burlington Building across an 80-foot street, with ordinary glass windows in wooden frames, became ignited as a matter of course. That more damage was not done to it below the 9th floor is attributed to the width of street, height of building (2 stories) at No. 525-531 W. Jackson, angling direction of the wind and the fact that some of the walls (see Fig. 1) of the Austin and Atlantic Buildings partly stood up and diverted the heat and embers upward and away from it.

In the light of experience gained from this fire and others, the following comments and recommendations are considered applicable:

One means of retarding the communication of fire from one building to another is to properly protect the exterior openings, and to provide suitable automatic fire doors on fire wall openings. Had this condition existed in the block in which the fire occurred, the result would probably have been a different story.

An 80-foot clear space is not adequate to protect a high building against the temperatures produced in a conflagration.

Wired glass windows of approved design, properly installed, are an admirable means of protection against exposure within reasonable limits. They will not stand up against such an exposure as the Atlantic Building was subjected to, and it is possible that unassisted they would not have kept the fire out of the Burlington Building, but in the latter building they would have at least provided a barrier to embers and have made it easier for the fire department to fight the fire.

Automatic sprinklers, while accomplishing little, if any thing, in this fire because of the exposure conditions which prevailed, are still to be regarded as the best type of automatic private protection.

Inside standpipes should be located where they may be used to best advantage, and the connections should be about the distance from the floor that the ordinary street fire hydrant connection is above the walk. Standpipes in the Burlington Building were not located in the stair wells where they should have been in order that firemen might have the protection of the enclosing walls in fighting fires on the various floors, but instead were placed in such positions that the firemen had to pass out of the shafts into the open rooms to reach them. The 2½-inch fire department connections were placed six to seven feet above the floor, making it necessary that the firemen be lifted by the legs and held while connecting the hose.

There is no such thing as a **fire proof** building. A building will resist damage to itself by fire from within or from an exposure according to the nature and the application of the materials used in its construction. It is absurd to expect that a building which is built partly of fire resisting materials and partly of combustible materials and filled with combustible contents will not be materially injured both as to structure and contents when subjected to high temperatures.

The idea then must be to use materials that will stand high temperatures with the least damage; to bar out exposing fires and prevent lapping of interior fire from floor to floor through windows, by proper exterior protection; to prevent the building up of high temperatures within by minimizing the amount of combustible furniture and fixtures, by subdividing the floors with substantial partitions, and by making each floor an individual fire area through the use of substantial floor cut-offs. The Burlington Building has its floor openings enclosed better than many office buildings and these enclosures actually did prevent the fire communicating from floor to floor within, notwithstanding the fact that the doors were amply supplied with wired glass.

Marble, hollow-tile, plaster, wood, and glass behaved in the usual manner. Ornamental and glazed terracotta blocks were badly damaged where subjected to high temperatures, but it is doubtful if any other material now in common use would have done better.

Metal filing cabinets filled with papers and placed in rooms having wooden floor surfaces, trim, window frames, etc., and with more or less combustible records in the open, failed completely, while those which were placed in vaults were uninjured. This should be of interest to all concerns having valuable records to preserve. Without going into details as to the paralyzing loss sustained by the Burlington Road, in the matter of records and data extending back, in many cases, over a long period of years, it may be sufficient to say: (a) records and papers outside of vaults and safes constituted the large bulk of the occupancy and were completely destroyed from the 9th to the 15th floor, both inclusive; (b) many of these sets of records can be replaced only after long years of labor at great expense, while others are irreplaceable.

In conclusion, it is fair to say that the fire was a surprise to every one interested. It is doubtful if any one, being asked in advance, would have ventured a statement to the effect that fire starting where it did, or any place in the block for that matter, could get under headway and do the amount of damage which this one did. Unquestionably there are numerous locations in Chicago and other cities where should a fire get a start under similar conditions the resulting damage to fire-resistive and sprinklered buildings might be much more serious than this. The Burlington Building is relieved of its east exposures, but what of those in the block immediately north?

Thanks are extended to the National Board of Fire Underwriters (Chicago office) for data on water supply and pressure, and distribution of fire apparatus at time of fire; Messrs. Eppich, Sisson and Worley of the Senior Class in Fire Protection at Armour Institute of Technology for data concerning damage to structural materials in the Burlington Building and for several pictures used in this report; to officials of the Burlington Road for numerous courtesies; to Underwriters' Laboratories, Inc., for helpful information regarding safes; and to all others who have in any way assisted in this work.

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